OXFORD JOURNALS
OXFORD UNIVERSITY PRESS

HERODOTUS AS A MEDICAL WRITER

Author(s): Warren R. Dawson and F. D. Harvey

Source: *Bulletin of the Institute of Classical Studies*, 1986, No. 33 (1986), pp. 87-96

Published by: Oxford University Press

Stable URL: https://www.jstor.org/stable/43646521

JSTOR is a not-for-profit service that helps scholars, researchers, and students discover, use, and build upon a wide range of content in a trusted digital archive. We use information technology and tools to increase productivity and facilitate new forms of scholarship. For more information about JSTOR, please contact support@jstor.org.

Your use of the JSTOR archive indicates your acceptance of the Terms & Conditions of Use, available at https://about.jstor.org/terms

Oxford University Press is collaborating with JSTOR to digitize, preserve and extend access to *Bulletin of the Institute of Classical Studies*

JSTOR

HERODOTUS AS A MEDICAL WRITER

Warren R. Dawson

With notes by F. D. Harvey[1]

> 'Herodotus interwove into his history all the varied and extensive knowledge acquired in his travels and by his own personal researches.' — Sir William Smith.

Apart from the works of professed medical writers, such as Hippocrates and Galen, there is much interesting information respecting ancient notions of disease and its treatment and other topics of medical interest to be gleaned from the writings of the Greek historians. A search through the nine books of Herodotus has resulted in a rich crop of notes, a selection of which I now have the honour to offer you. The similar but much more efficient labours of Dr. J. D. Rolleston have already shown how much there is of medical interest to be found in purely literary works, and his own brilliant collections from the Greek Anthology, Lucian, Chaucer and others[2] have justly aroused and stimulated the interest of those who have hitherto only sought *res medica* in *locis medicis*. To what extent the medical knowledge of such non-medical writers is to be relied upon, is a matter of critical discernment which does not concern my present purpose, which is merely to assemble and relate the statements as they have been left for us by Herodotus, without comment; for whether true or false such statements give us some indication of popular lay opinions on matters medical in the fifth century before Christ.

---

[1] There is, to the best of my knowledge, only one article in English on Herodotus and medicine, in the *Central African Journal of Medicine*, not the most accessible of periodicals. Its author, A. P. D. Thomson, has made a thorough but uncritical collection of the relevant passages, including those referring to accidents, wounds, mutilations and deaths, which are not dealt with in the present sketch. In German there is D. Brandenburg, *Medizinisches bei Herodot*, again more of a scrapbook than a discussion. Hence the publication of this lecture, over half a century after it was delivered.

Warren Dawson (1888-1968) was a distinguished historian of medicine, best known for his work on ancient Egypt. An account of his life can be found in T. G. H. James' obituary notice in *JEA* 55 (1969), 211-4; his medical publications are listed in the B.M. *Catalogue*, and those relating to the ancient world in the *Année Philologique*. This paper, an expanded version of his letter to *Annals of Medical History* 6 (1924), 357-60, was delivered on 23 Nov. 1934 to the Osler Club of London, a society founded in 1928 'to encourage among medical students the study of medical history'. In its present form, this article is something of an *amphisbaina*: the text is Dawson's, the notes and any errors mine. I am deeply indebted to Dr Vivian Nutton, not only for initial bibliographical guidance, but also for improving my penultimate draft by the addition of further essential references. The late Dr A. White Franklin kindly sent me his publications on the Osler Club.

Abbreviations: Brandenburg = D. Brandenburg, *Medizinisches bei Herodot* (Medizingeschichtliche Miniaturen 2, Berlin, 1976); Grapow = H. Grapow and others, *Grundriss der Medizin der alten Aegypter* (9 vols., Berlin, 1956-73); Grmek = M. D. Grmek, *Les maladies à l'aube de la civilisation occidentale* (Paris, 1983); HW = W. W. How and J. Wells, *A commentary on Herodotus* (Oxford, 1912); Leca = A. P. Leca, *La médecine égyptienne* (Paris, 1971); *Legacy*^{1} = S. R. K. Glanville (ed.), *The Legacy of Egypt* (Oxford, 1942); *Legacy*^{2} = J. R. Harris (ed.), *The Legacy of Egypt* (Oxford, 1971); Lloyd *Intro.* = A. B. Lloyd, *Herodotus Book II: Introduction* (Leiden, 1975); Lloyd *Comm.* = A. B. Lloyd, *Herodotus Book II: Commentary* 1-98 (Leiden, 1976); Lloyd *Magic* = G. E. R. Lloyd, *Magic, Reason and Experience* (Cambridge, 1979); Macan = R. W. Macan, *Herodotus, the Fourth, Fifth and Sixth Books* (London, 1895) and *Herodotus, the Seventh, Eighth and Ninth Books* (1908), as appropriate; Majno = G. Majno, *The Healing Hand* (Cambridge, Mass., 1975); Sigerist I and II = H. E. Sigerist, *A History of Medicine* I (Oxford and New York, 1951) and II (1961); Thomson = A. P. D. Thomson, 'Medicine and Herodotus', *Central African Jnl. of Med.*, Suppl. to vol. 12 (1966), 13-24.

[2] 'The medical aspects of the Greek Anthology', *Janus* 19 (1914), 35-45, 105-31; 'Lucian and medicine', *Janus* 20 (1915), 83-100; 'The medical interest of Casanova's *Mémoires*', *Janus* 22 (1917), 115-30, 205-22; 'Voltaire and medicine', *Proc. Roy. Soc. Med. (Sect. Hist. of Med).* 19 (1925), 17-28; 'Chaucer and mediaeval medicine', *Proc. 9th Internat. Congr. Hist. of Med.* Bucharest 1932 (1933), 646-58; 'Alcoholism in mediaeval England', *British Jnl. of Inebriety* 31 (1933), 31-49.

In the first place it may be noted that illness and disease are nearly always stated or implied by Herodotus to be attributable to divine displeasure, as will appear again and again.[3] But he credits the Egyptians[4] with a more rationalistic outlook than that of the Greeks when he affirms that they accounted for the sickness and diseases to which they were liable as being produced by the food they ate (2.77.2).[5] That the Egyptians, however, had no such rationalistic notions is clearly proved by a study of their own medical literature,[6] which clearly indicates that disease was believed by them in most cases to be caused by possession, or as they themselves often phrase it, 'by the assaults of a god or a goddess, of a dead man or a dead woman, of an enemy male or female, of an adversary male or female, or of a pain male or female'.[7] The prevalence of the use of magical methods[8] in the treatment of disease supports this view. It is only in the treatment of such palpable physical causes of suffering as wounds and fractures inflicted by human agency or by bites and stings of animals that real medical or therapeutic methods are employed by them. Herodotus tells us that the Egyptians were a healthy race, and adds 'they purge themselves every month, for three days successively, seeking to preserve health by emetics and clysters' (2.77.2). They certainly were acquainted with purgatives, as the many prescriptions in the medical papyri testify.[9]

Beneath the great mass of magic which the papyri expound, there is nevertheless no doubt that the Egyptians did indeed possess considerable real medical knowledge, and their physicians enjoyed a widespread reputation. Homer states that in Egypt 'the bounteous land produces so many drugs, many of them excellent when compounded and many fatal, and each physician is skilled above all men' (*Od.* 4. 229ff). Darius, when he injured his foot, says Herodotus, immediately sent for Egyptian physicians, 'who had the highest reputation for skill in the art of healing'. The expectations of Darius, however, were disappointed, for the Egyptians' handling of his case made bad worse, and subjected him to so much pain that other aid was sought. The injury appears to have been a dislocation of the ankle, which the Egyptian physicians sought to reduce by forcibly twisting the foot, a process so painful to the patient that he was deprived of sleep for seven days and seven nights. One of Darius' suite told the king that he had heard at Sardis of the great skill of a Crotonian, Democedes by name, and orders were issued that this man should immediately be sent for. He was found amongst the slaves of the governor of Sardis, wearing fetters and clothed in rags. When he arrived, Darius asked him if he understood his art, but, fearing to reveal himself, Democedes replied in the negative. Darius, by a timely demonstration of whips and goads, caused him to reconsider his statement. Democedes then admitted that he indeed had some medical knowledge, and the king thereupon placed himself in his care. Gentler methods were applied and a complete cure resulted, for which the physician was well rewarded (3.129-30). On another occasion, Cyrus, being afflicted with some ophthalmic complaint, sent to the Pharaoh Amasis for the best oculist in Egypt; his request was complied with, and the oculist was duly dispatched to Cyrus by the king of Egypt as a present to the Persians. The physician, however, resented being thus torn from his family and his fatherland, and quite naturally had a grudge against Amasis. He paid his score by inciting Cambyses, the son of Cyrus, to provoke war by carrying off the daughter of Amasis (3.1). The statement of Herodotus that the Egyptian physicians were all specialists (2.84) has frequently been quoted by medical historians.[10] The miscellaneous nature of the contents of the medical papyri, however, suggests that these manuscripts are compilations and copies, made for the use of general practitioners, who had to be prepared to deal with cases of every kind. Nevertheless, the statement may have in it a germ of truth, for the papyri known to us are all compilations, copied from numerous different sources, and contain excerpts from a considerable number of separate books, each dealing with an individual branch of medicine, and this fact suggests that each of the prototypes may have been the work of a specialist. This, however, is no more than an assumption, as the authorship of none of the Egyptian medical books is known to us.

---

[3] See G. E. M. de Ste. Croix, 'Herodotus', *G & R* 24 (1977), 130-48, esp. 139; on the way that Hdt. combines this belief with his belief in natural causes, Lloyd *Magic*, 29-30; generally, R. Parker, *Miasma* (Oxford, 1983), ch. 8 (Hdt. at 242-3, 250, 253). In the Old Testament, leprosy is attributed to God's anger: S. G. Browne, *Leprosy in the Bible*^{3} (London, 1979), 12.

[4] On Egyptian medicine see: Dawson in *Legacy*^{1}, 179-97; Sigerist I, 217-373, esp. 267-359; J. A. Wilson, 'Medicine in Ancient Egypt', *Bull. Hist. Med.* 36 (1962), 114-23; J. R. Harris in *Legacy*^{2}, 112-37; Leca; Majno, ch. 3; Brandenburg, 14-26. Extensive bibliography in K. R. Weeks, *The Anatomical Knowledge of the Ancient Egyptians* (Diss. Yale 1970), 342-503.

[5] Cf. Diod. Sic. 1.82.2. On what the Egyptians ate see Sigerist I, 248-50, Leca, 285-93; Lloyd *Comm.*, 331-2 for evidence supporting Hdt. (*contra* Dawson and others). For ancient diet generally see D. and P. Brothwell, *Food in Antiquity* (London, 1969). Hdt. goes on (2.77.3) to attribute the excellent health of the Egyptians to their climate: Sigerist I, 222-5; Lloyd *Intro.*, 165-6, *Comm.*, 332-3; Brandenburg, 51-6.

[6] The chief sources are: J. H. Breasted, *The Edwin Smith Surgical Papyrus* (Chicago, 1930); B. Ebbell, *The Papyrus Ebers* (Copenhagen and London, 1939); and P. Berlin 3038, for which see J. B. de C. M. Saunders, *The Transitions from Ancient Egyptian to Greek Medicine* (Lawrence, Kansas, 1963). German translations of all the texts, with full discussion, glossaries etc., will be found in Grapow. See also Dawson in *Legacy*^{1}, 180-4; Sigerist I, 298-318; Harris in *Legacy*^{2}, 113-30; Leca, ch. 2.

[7] E.g. Ebers papyrus (ed. Ebbell) I, XXX; cf. Sigerist I, 271-4.

[8] Dawson, *Magician and Leech* (London, 1929); Ebbell (n. 6 above), 18-21; Dawson in *Legacy*^{1}, 184-7; Sigerist I, 267-96; Leca, 57-76; Majno, 125-8; Brandenburg, 82-91.

[9] Harris in *Legacy*^{2} 127-9; Majno, 129-30; Lloyd *Comm.*, 331-2; Brandenburg, 103-5.

Democedes the Crotonian,[11] to whom reference has just been made, gained a wide reputation, and was appointed physician by the ruling body of the Aeginetans who paid him a salary out of the public funds;[12] 'though he was unprovided with means and had none of the appliances necessary to his art, he surpassed the most skilful of their physicians' (3.131). Democedes by his knowledge and skill brought a great reputation to Crotonian medicine, and, owing to the lustre imparted by his name, the Crotonian doctors were accounted the best in Greece [their only rivals being the Cyrenians].[13] Darius, in gratitude for the cure of his foot effected by Democedes, treated his healer with great consideration and honour. He was accorded a seat at the royal table and was given everything his heart could desire, except only the liberty of returning to his homeland, for Darius was then at Susa. It must be recorded to the credit of Democedes, that when he found himself raised to royal favour, one of his first acts was to secure a pardon for his unsuccessful Egyptian colleagues, who were then under sentence of death (3.132).

Soon after his successful treatment of Darius, the skill of Democedes was put to a further test, for Atossa, the wife of Darius and daughter of Cyrus, had a swelling in her breast, which burst, and was attended by complications (3.133). While the growth was small, she, from motives of delicacy, like Caroline of Ansbach, kept her condition a secret and informed no one of the matter. When, however, the symptoms became alarming and could no longer be concealed, she sent for Democedes and confided her secret to him. The physician, having examined his patient, promised to effect a cure if she would implicitly obey his instructions. The happy result was attained, but unfortunately Herotodus gives us no details either of the malady or of the method of treatment (3.134).[14]

---

[10] Sigerist I, 319-21; Grapow III; Leca, 105-22; E. Edel, *Aegyptische Aerzte und ägyptische Medizin am hethitischen Königshof* (Opladen, 1976); Lloyd *Comm.*, 349-51 with bibliogr. E.g. oculists: R. Watermann, 'Die altägyptischen Augenärtze', *Sudhoffs Archiv für Gesch. der Medizin* 42 (1958), 117-41; Brandenburg, 71-5; M. Helbling, *Der altägyptische Augenkranke* (Zürich, 1980).

[11] M. Michler, 'Demokedes von Kroton', *Gesnerus* 23 (1966), 213-29; E. D. Phillips, *Greek Medicine* (London, 1973), 182-4, 225-6. He is the hero of a lengthy novel by A. Swerr (pseudonym of E. Schmidhuber), *Arzt der Tyrannen: Demokedes von Kroton* (Munich, 1961).

[12] Cf. L. Cohn-Haft, *The Public Physicians of Ancient Greece* (Northampton, Mass., 1956); on medical careers generally, Phillips (n. 11 above) ch. 9.

[13] Most editors delete the clause in brackets; Legrand retains it.

In contrast to the nations which had skilled medical aid at their command, Herodotus states that the Babylonians had no physicians, but brought their sick into the market place in order that passers-by might confer with them on their symptoms in the hope that the patient might thus be able to elicit, from someone who had been similarly afflicted, advice as to how to proceed to effect a cure (1.197). This, of course, was not really the case, for the Babylonians and Assyrians were possessed of much medical knowledge, and a large, though fragmentary, mass of medical literature written in cuneiform characters has survived.[15] One tribe of Indians[16] likewise, according to Herodotus, had no medical skill and held an entirely fatalistic view of disease, for when sick they were wont to go to solitary places to die, no kind of treatment being attempted (3.100). Other Indian tribes, the Padaeans, who were eaters of human flesh, were wont to kill their sick, in order that their flesh might not become tainted by disease and be thus unfit for food (3.99). The Massagetae, although they too followed the brutal custom of cannibalism, abstained from eating the flesh of those who had died of disease (1.216.3). Similar cannibalistic customs were attributed to the Issedones (4.26).[17]

Epidemics and plagues were regarded as a sure sign of divine displeasure, or as warnings of worse calamities to come. Thus when the Chians sent a band of a hundred youths to Delphi, only two returned, the rest having died of plague, and the calamity was taken as a warning of greater misfortunes to follow (6.27). In vengeance for the part played by the Cretans at Troy, the outraged gods visited their island with pestilence, carrying off both man and beast, Crete being thus almost depopulated (7.171). The hapless army of Xerxes on the march from Mardonius to the Hellespont was decimated by pestilence and dysentery (8.115.3).[18] The Scythians pillaged the shrine of Aphrodite at Ascalon, and the outraged deity smote them and all their posterity with a 'female disease' (ϑήλεαν νοῦσον), 'so that the Scythians confess that they are afflicted with it on this account, and those who visit Scythia may see in what state they are whom the Scythians call Enarees' (1.105). As some compensation for their fate, however, these Enarees were endowed with the gift of prophecy (4.167.2). This disease, the manifestations of which were effeminacy and impotence, is discussed at length by Hippocrates (*Airs, Waters, Places* 22).[19]

---

[14] But see now A. T. Sandison, 'The first recorded case of inflammatory mastitis', *Med. Hist.* 3 (1959), 317-22; Grmek, 497. Not cancer.

[15] The work of F. Köcher, *Die babylonisch-assyrische Medizin in Texten und Untersuchungen* (in progress: 6 vols. to date, Berlin, 1963-80), is leading to a fundamental reappraisal. The most recent discussion is P. Herrero, *La Thérapeutique mesopotamienne* (Paris, 1984). Earlier literature: Sigerist I, 377-497, esp. 425-41; A. L. Oppenheim, 'Mesopotamian medicine', *Bull. Hist. Med.* 36 (1962), 97-108; *idem*, *Ancient Mesopotamia* (Chicago and London, 1964), 288-305, 397; Majno, ch. 2; Brandenburg, 26-33; J. Oates, *Babylon* (London, 1979), 180-3, 191. We should not speak of Hdt.'s 'error' (Brandenburg, 26); it is more likely that Babylonian medicine had declined by the fifth century (Majno, 67-8).

[16] Indian medicine: Sigerist II, 121-93; Majno, ch. 7.

[17] Also the Kallatiai, 3. 38. For alleged parallels and motivation, see HW I, 311-2; J. G. Frazer, *The Golden Bough* I (London, 1932), 106-9, VIII (1933), 154-8; cf. III (1936), 264. However, W. Arens, *The Man-eating Myth* (New York, 1979), argues very plausibly that there is no satisfactory first-hand evidence for cannibalism as a socially acceptable custom in any part of the world; cf. S. H. Braund, 'Juvenal on how to (tr)eat people', *Omnibus* 11 (1986), 15-17. Kambyses' starving troops are said to have resorted to allelophagy, 3.25.6-7: 'survival cannibalism', for which, of course, there are plenty of well-attested parallels.

[18] Hdt. exaggerates their sufferings: on this, and the numbers involved, see Macan *ad loc.*; HW II, 273-4. There are frequent references to *dysenteria* in the Hippocratic corpus: see Littré's index (vol. X), 566-7.

In contrast to this effeminacy in men, reference may be made to the masculinity of women, as revealed by the Amazons.[20] Herodotus, Diodorus Siculus and others have given us accounts of these remarkable women who came from Pontus, near the borders of the Black Sea, and in their warlike exploits migrated far and wide (Hdt. 4.110-17; Diod. 2.44-6, 3.52-5; Strabo 11.5.1-4, etc.). The Amazon women exclusively managed all the affairs of the government and their army was composed entirely of female soldiers. To the men were relegated all menial duties and household cares and the rearing of children. In the words of Diodorus, 'when the Amazons bear children, the male infants are immediately handed over to the men who rear them on milk or cooked foods according to the age of the children. As to the female infants, as soon as they are born, their breasts are burnt so that they do not develop with the other parts of their bodies, and that the development of the breasts may not be an obstacle to military exercises'. According to other accounts, the right breast was amputated that its bulk might not impede the use of the bow, and Apollodorus says 'they pinched off the right breasts that they might not be tramelled by them in throwing the javelin, but they kept the left breasts that they might suckle' (2.5.9). In the Syriac version of Pseudo-Callisthenes, it is stated that the Amazons 'have one breast like a man's, and one like a woman's'.[21] These women, who were masculine enough in their habits, were, however, not lacking in female sexual impulses. Herodotus records that the Scythians, admiring their courage and physique, desired to have children by them. They therefore selected their most comely young men to make advances, and one of them, finding an Amazon alone, approached her. She did not repel him but readily suffered him to fondle and have intercourse with her, indicating at the same time by signs (for the languages of the two were mutually unintelligible) that his colleagues might receive similar favours from the other women, a concession they were not slow to take advantage of (4.111-4).

Passing mention may be made to the Egyptian phallic festivals alluded to by Herodotus. He relates that instead of carrying simple emblems of the penis as did the Greeks, they carried in their possessions human effigies, each of which was provided with an enormously exaggerated penis, which the women raised or lowered by pulling strings (2.48.2). There is no Egyptian evidence of such processions, but the Egyptians certainly had an obtrusively phallic god, Min, who is always represented on the monuments performing the act of masturbation with his left hand. Such figures, often colossal in size, have been found belonging to all periods from predynastic to Greek times. An Egyptian creation legend describes how the primeval god Kopri masturbated himself, swallowed his semen, and gave birth from his head to Shu and Tefnut, the first god and goddess, who then propagated their kind by the natural means. The

---

[19] The nature of the disease is not understood. The author of *Airs, Waters, Places* attributes it to excessive horse-riding. See W. R. Halliday, 'A note on the ϑήλεα νοῦσος of the Skythians', *BSA* 17 (1910-11), 95-102 (transvestite shamans); HW I, 107, 327; G. Dumézil, 'Les "énarées" scythiques et la grossesse de Narte Hamyc', *Latomus* 5 (1946), 249-55 (derived from Caucasian epic). Lloyd *Magic*, 28, 31, contrasts Hdt. (condition caused by a god) with Hippokrates (natural causes).

[20] D. von Bothmer, *Amazons in Greek Art* (Oxford, 1957); *OCD*^{2} *s.v*; J. Carlier, 'Voyage en Amazonie grecque', *Acta Antiq. Acad. Scient. Hung.* 27 (1979), 381-405 = J. Carlier-Détienne, 'Les Amazones font la guerre et l'amour', *L'Ethnographie* 76 (1980-81), 11-33; M. Lefkowitz, 'Princess Ida, the Amazons and a women's college curriculum', *Times Lit. Suppl.* Nov. 27 1981, 1399-1401; J. Boardman, 'Herakles, Theseus and Amazons' in D. C. Kurtz and B. A. Sparkes (edd.), *The Eye of Greece* (Cambridge, 1982), 1-26; P. du Bois, *Centaurs and Amazons* (Ann Arbor, 1982); P. A. Brunt, *Arrian* II (Loeb series, Cambridge Mass. and London, 1983), 493-5; W. B. Tyrrell, *Amazons* (Baltimore, 1984; wild structuralism); F. S. Brown and W. B. Tyrrell, 'ἐκτιλώσαντο: a reading of Herodotus' Amazons', *CJ* 80 (1985), 297-302.

[21] E. A. Wallis Budge, *The History of Alexander the Great* (London, 1889), 127.

Egyptians also made models of the human penis which were fertility amulets and were offered to the goddess Hathar.[22]

We will now revert to the more general medical allusions in Herodotus. Pharnuches, a general, met with an accident at Sardis. His horse, startled by a dog, suddenly reared and threw him. He vomited blood, and the disease developed into *phthisis*.[23] The horse was punished by having its legs cut off at the knees; in this case, the horse itself was evidently regarded as being responsible for the disease, instead of its being attributed to the displeasure of the gods (7.88).

The Persians[24] appear to have had some medical skills. During a naval battle an enemy named Pytheas fought with great bravery, and was so severely wounded in the conflict that he was almost cut to pieces. 'But when, having fallen, he was not dead but still breathed, the Persians who had served on the ships were very anxious to save his life because of his bravery, and they treated his wounds with myrrh, binding them up with bandages of linen cloth.' Pytheas was treated with high honour by his foes, but the other prisoners were made slaves (7.181).[25] The Persians had some understanding of infection and contagion, for they isolated all persons suffering from leprosy and scrofula (λέπρη and λεύκη). Such persons were not permitted to remain in towns, nor to have any contact with their fellow men. They likewise drove away white doves, believing them to be similarly afflicted (1.138). Possibly, however, the doves, in being thus driven off, were fulfilling the function of the scapegoat in carrying away the disease with them. In this connection the Hebrew custom may be mentioned, whereby at the cleaning of lepers and houses believed to be tainted with the disease, a priest used to release a live bird in the fields, doubtless with the intention of banishing the disease with the bird (*Leviticus* 14.7).[26]

Some curious and interesting physiological ideas are to be found in the writings of Herodotus. Thus he believes that the inhabitants of the Nile Valley become dark from exposure to excessive heat (2.22), and that certain Indian tribes secrete black semen: 'the semen they emit is not white like that of other men, but as black as their skin; the Ethiopians also ejaculate similar semen' (3.101).[27] We are told also of a remarkable race of hairless men, living a wild life in a remote and mountainous tract on the confines of the land of the Scythians. These people, who are bald from birth, men and women alike, are flat-nosed and prognathous: they have no weapons and cultivate few arts (4.23).[28] Of anatomy, we find practically nothing in Herodotus, except what is contained in his well known description of Egyptian embalming. As I have dealt with this fully elsewhere, no further mention of it is necessary now.[29] Of anatomical interest, however, is the mention of a post-mortem made upon a boy whom Cambyses had killed with an arrow. His body was opened in order to ascertain to what region the arrow had penetrated, and it was found to have pierced the heart (3.35.1-3).[30] Herodotus records that amongst the bones of the slain warriors of the army of Xerxes, there was found a skull without sutures, a jaw-bone in which all the teeth, incisors, canines and molars, had coalesced into a single ridge of bone, and a skeleton measuring five cubits in length, i.e. about 7ft. 7in. (9.83.2).[31] In his thirst for knowledge, Herodotus, when visiting the battlefield of Pelusium, threw stones at the skulls of the Persians and Egyptians that lay scattered about, in order to ascertain their relative hardness. He found that the Persians' skulls were so thin that they could be smashed by a single pebble, whereas those of the Egyptians were so hard that they could be broken only by deliberately pounding them with a heavy stone. He explains this phenomenon by the statement that the Egyptians from childhood shave their heads, and the bones become thickened by exposure to the sun, whilst the Persians, who habitually wear hats, have frail skulls. Herodotus made the same experiment with bones of the slain on the battlefield of Papremis (3.12).[32]

---

[22] Puppets: Lloyd *Comm.*, 220-3; A. David, 'Puppets in antiquity', *Pegasus* 22 (1979), 16-18. For Egyptian creation myths see H. Görgemanns in *RAC* Suppl. 1 (1985), 404-6 *s.v.* Anfang. For Min see Rusch in *RE* Suppl. 6 (1935), 432-61; H. Bonnet, *Reallexikon der Aegyptischen Religionsgeschichte* (Berlin, 1952), 461-7; Helck in *Kleine Pauly* 3 (1969), 1314-5. For Kopri see Bonnet *s.v.* Chepre, 134-5; also *s.v.* Atum, 71-2, and Weltbeginn, 865; one scholar objects that he did not masturbate, but copulated with himself.

[23] On *phthisis* see E. D. Baumann, 'De phthisi antiqua', *Janus* 34 (1930), 209-25, 253-72; Grmek, ch. 7, esp. 269-86 (Hdt. 7. 88 is discussed at 270-1). For *phthisis* in the Hippocratic corpus, see Littré's index, 735-6, with Grmek, 271-83. The disease was similar to tuberculosis, but not necessarily identical with it.

[24] Persian medicine: H. Fichtner, *Die Medizin in Avesta* (Leipzig, 1924); C. Elgood, *A Medical History of Persia* (Cambridge, 1951), ch. 1; Sigerist II, 197-209; D. Brandenburg, 'Avesta und Medizin', *Janus* 59 (1972), 269-307; J. Hampel, *Medizin der Zoroastrier im vorislamischen Iran* (Husum, 1982).

[25] F. D. Harvey, 'The wounds of Pytheas', forthcoming.

[26] See Sigerist II, 205 (Persia); cf. I, 447 (Jews, Babylonia), II, 132-3, 161 (India). For the Old and New Testaments, see Browne, *Leprosy in the Bible* (n. 3 above). The best discussion of the Greek evidence is Grmek, ch. 6, who discusses the Hdt. passage at 243-4. Two types of leprosy were distinguished by the Babylonians; the Greeks, who were unfamiliar with the disease, used approximate translations to convey the distinction. *Lepra* was characterized by rough (not 'scaly') nodules; *leukē* by white spots (Grmek, 243-8).

[27] Aristotle corrects Hdt. on this, *de Gen. Anim.* 736a10-14 ('in that case they would have black teeth too'); *Hist. Anim.* 523a18-19.

Two cases of blindness may be mentioned. The first was the result of a vision. An Athenian named Epizelus, fighting at Marathon, suddenly became blind although he had received no wound or other injury. He remained sightless to the end of his days. He stated that he had a vision of a long-bearded man who stood before him, then passed him by and attacked the man next to him (6.117).[33] The other case was a divine punishment. King Pheron of Egypt, the son of Sesostris, was in a boat during the inundation of the Nile, when a high wind arose and lashed the water into a storm. The king arrogantly flung his dagger into the river: an insult to the Nile god, which was immediately punished by pain in the eyes and blindness. For ten years the king remained sightless, but, in the eleventh, a message came to him from the oracle of Buto to inform him that his term of punishment had expired and that he should recover his sight by washing his eyes with the urine of a woman who had never been unfaithful to her husband. He made trial, first of his own wife, which failing, he tried a succession of other women, until at last he managed to find one that satisfied the condition of the oracle. Having recovered his sight, he had all the faithless women collected together and burned, but he married the woman through whom he had regained his vision (2.111).[34] This pretty story, of course, is entirely devoid of historical justification, but Herodotus, in relating it, shows that he had a pretty poor opinion of the chastity of Egyptian women.

---

[28] On these Argippaioi see HW I, 310-1; E. H. Minns, *Scythians and Greeks* (Cambridge, 1913), 108-9 (pure Mongols with shaven heads); E. D. Phillips, 'The Argippaei of Herodotus', *Artibus Asiae* 23 (1960), 124-8, with articles listed in 124 n.1 (tonsured priests in southern Urals).

[29] See Lloyd *Comm.*, 353-65, whose bibliography includes three contributions by Dawson. Also Majno, 130-9; J. Hamilton-Paterson and C. Andrews, *Mummies* (London, 1978), esp. ch. 2; A. R. David, *Mysteries of the Mummies* (London, 1978), esp. ch. 3; A. J. Spencer, *Death in Ancient Egypt* (Harmondsworth, 1982), esp. ch. 5. For the curious posthumous history of mummies, see J. R. Harris in *Legacy*^{2}, 130-7. Cf. K. R. Weeks, *The Anatomical Knowledge of the Ancient Egyptians* (Diss. Yale, 1970).

[30] Kambyses also opened ancient tombs and examined the bodies (3.37.1): scientific enquiry or morbid curiosity?

[31] Albrecht Achilles, Margrave of Brandenburg in 1486, also had a sutureless skull (HW II, 324). Pyrrhus' teeth were allegedly conjoined, a terrifying sight (Plut. *Pyrrh.* 3.6); so were those of a son of Prusias of Bithynia (Plin. *NH* 7.69). Fusion of the teeth (dental ankylosis) does occur, but a single unbroken ridge is incredible (Grmek, 117). The tallest Persian was Artakhaies, about 8 ft. or 2.55m. (7. 117. 1). It was said that the mortal remains of Orestes measured ten and a half feet (1.68.3 with note *ad loc.* in my forthcoming commentary).

[32] *Pace* Herodotus and HW (I, 259), Egyptian skulls are of normal thickness; ancient Persian skulls have not been investigated (Brandenburg, 50). The notion that African skulls are abnormally tough persisted until 1915 (P. G. Wodehouse, *Psmith Journalist* [Penguin reprint 1970], 122-3), and no doubt beyond. We do not know how many skulls Hdt. experimented on; he may have struck on a sufferer from scurvy, which does thicken the bones. Scurvy was unknown to the Greeks, whose vegetable diet contained plenty of ascorbic acid (vitamin C): Grmek, 120-2.

[33] Macan *ad loc.* states that there are other records of blindness following visions, but cites only *Acts of the Apostles* 9.1-9.

Several cases of mental disorders are to be found.[35] Cambyses suffered from infancy from the 'sacred disease' (epilepsy); and the matter-of-fact historian comments that it was not at all surprising, when his body was so afflicted, that his mind should also be unsound (3.33). Charilaus, brother of the tyrant Maeandrius, was mentally afflicted and was confined in a dungeon (3.145). The entire crew of a trireme was seized with madness as the vengeance of two gods for the desecration of their statues (5.85.2).[36] Owing to lack of water, the army of Xerxes was seized with panic during the first night of their march to Sardis, the river Scamander having run dry (7.43.2).[37] Cleomenes was of such weak intellect that he was almost mad (5. 42. 1), and on one particular occasion it is said that 'madness seized upon him, though he was before somewhat crazy' (6.75.1). Perhaps this was a case, not of madness, but of delirium tremens, for elsewhere the madness of Cleomenes is attributed to his habit of drinking unmixed wine, a custom he learned from the Scythians (6.84).[38]

A curious instance of therapeutic treatment is recorded by Herodotus as being practised by the nomadic Libyans. 'When their children are four years old, they burn the veins on the crown of their heads with uncleaned sheep's wool, and some of them do it also on the veins of the temples, to the end that the humours flowing down from the head may not harm them as long as they live. And for this reason they say they enjoy such very good health, for the Libyans are indeed the most healthy of all men that we know of (cf. 2.77.3), but whether it is due to this cause, I cannot say with certainty ... But if convulsions (σπασμός) seize the children while they are burning them, they have discovered a remedy. By sprinkling them with the urine of a he-goat they cure them. I repeat what the Libyans themselves say' (4.187).[39] Herodotus evidently had his doubts, and he prudently arms himself with a disclaimer.

---

[34] The same story in Diod. Sic. 1.59, who adds that the chaste woman was a gardener's wife (has this detail dropped out of our MSS of Hdt.?). HW (I, 222) allege that 'this disgusting remedy is a genuine piece of Egyptian medicine'; the ammonia may have been effective; cf. Brandenburg, 114-5. Urine was certainly used as a drug (Grapow VI, 235-7), and is twice prescribed for eye troubles (*Pap. Ebers* LXIV and *Ram.* III A19-20 = Grapow IV.1, 59 [*ca* 1900 BC]), but not for blindness. The same is true of gazelle's, crocodile's, a child's, lizard's and pelican's dung (*Pap. Ebers* LVI-LXIII). On eye diseases generally, Grapow IV.1, 41-61; bibliogr. on prescriptions in Sigerist I, 368 nn. 195-6; Leca, 289-91; for oculists see n. 10 above. Urine is recommended for eye diseases by Pliny (*NH* 28.65-6) and Dioscorides (*de Mat. Med.* 2.81.2 = 1.165 Wellmann), and for other medical purposes by Galen (*Simpl. Rem.* 10.15 = 12.284-8 Kühn) and Cato (*Agr.* 157.10-11). See generally Muth in *RE* Suppl. XI (1968), 1292-1303 *s.v.* Urin (esp. 1296-9); Herter in *RAC* 13 (1985), 618-34 *s.v.* Harn (esp. 621-2). Jesus used spittle to cure the blind (Mark 8.23, cf. John 9.6); so did Vespasian (Tac. *Hist.* 4.81, Dio 66.8.1, Suet. *Vesp.* 7.2-3). References in Hdt. to urine and spittle are collected by Thomson, 24.

[35] Brandenburg, 78-82; cf. B. Simon, *Mind and Madness in Ancient Greece* (Ithaca and London, 1978; no discussion of Hdt.); Parker *Miasma* (n.3 above), 244-8.

[36] On sacrilege generally, Parker (n. 3 above), ch. 5. It results in insanity in Paus. 3.16.9 also. For other divine punishments for sacrilege see Hdt. 1.19-22; Paus. 7.19.3; Athen. 15.672a.

[37] More panics at 4.203.3; 8.38. Miltiades was overcome by a shuddering fear (φρίκη) in a sanctuary on Paros (6.134.2), and broke his leg jumping out over the wall: see L. W. Daly, 'Miltiades, Aratus and compound fractures', *AJP* 101 (1980), 59-60.

[38] Various theories about his death are listed in my article in G. W. Bowersock and others (edd.), *Arktouros: Studies presented to B. M. W. Knox* (Berlin and New York, 1979), 253 n. 1. On drunkenness in Herodotus, Thomson, 15; more generally, J. D. Rolleston, 'Alcoholism in classical antiquity', *Brit. Jnl. of Inebriety* 24 (1927), 101-20; reff. in A. P. McKinley, *Quarterly Jnl. of Studies on Alcohol* 11 (1950), 230 n. 1; G. Preiser, 'Wein im Urteil der griechischen Antike' in G. Völger (ed.), *Rausch und Realität* (Köln, 1981), 296-303. Mnesitheus (4th century BC) believed that drunkenness led to madness (Athen. 2.36ab), as did ps.-Pythag. *ap.* Stob. 3.18.23 Hense. But Kleomenes' madness was generally attributed to divine displeasure: 6.75.3, cf. 84.3.

Croesus had a son who was dumb, and after all remedies had been tried in vain, appeal was made to the Delphic oracle. The reply was to the effect that it would be an evil day upon which the son should speak for the first time. The dumb lad spoke at the very moment when a Persian was advancing to kill his father, who, however, owing to his misfortunes, was not then averse from dying. The son thus saved his parent's life, and retained the power of speech to the end of his days (1.85).[40] A certain Battus consulted the oracle about an impediment in his speech, but he received an enigmatic reply (4.155).[41] The oracle was again consulted when the Cnidians, who in their attempt to make an island by digging through an isthmus, suffered severe injuries to their eyes and bodies through the stone they were engaged in cutting. The oracle replied that had it been the will of Zeus that the land should be an island, he would have so made it. They therefore abandoned the undertaking and suffered capture (1.174).[42]

A dire condition afflicted Pheretime, the wife of Arcesilaus, whose life closed in wretchedness. As a divine punishment for her cruel career, her body, even when alive, swarmed with maggots, 'so odious to the gods are the excesses of human vengeance' (4.205).[43]

The period of gestation, reckoned by lunar months, is generally stated by Greek writers to be ten months. When the birth of his son was announced to Ariston, King of Sparta, he counted the time upon his fingers, and finding it to be less than ten months, refused to believe his own paternity. The child's mother afterwards informed her son that she had had intercourse with a spectre on the same night as with her husband, and that she then conceived. When Ariston doubted the matter, owing to the period of gestation being less than ten months, he was ignorant, she said, that women frequently bear children at seven or nine months, and that her son was a seven month's child (6.63, 69).[44]

---

[39] Parallels in Macan *ad loc.*

[40] W. Poetscher, 'Der stumme Sohn der Kroisos', *Zeitschr. für klinische Psychol. und Psychotherapie* 20 (1974), 367-8.

[41] This led to the colonization of Cyrene, 4.150-9: J. Boardman *The Greeks Overseas*^{3} (London, 1980), 153-7; A. J. Graham in *CAH*^{2} III. 3 (1982), 135-8.

[42] H. W. Parke and D. E. W. Wormell, *The Delphic Oracle* I (Oxford, 1956), 141, rightly take the oracle to be genuine; *contra*, J. Fontenrose, *The Delphic Oracle* (Berkeley etc., 1978), 306. See R. C. T. Parker in P. A. Cartledge and F. D. Harvey (edd.), *Crux: essays presented to G. E. M. de Ste. Croix* (Exeter and London, 1985) = *Hist. Polit. Thought* 6 (1985), 316.

[43] See Lloyd *Magic*, 32 n. 108. Maggots also allegedly swarmed in Sulla (Plut. *Sulla* 36; T. F. Carney, 'The death of Sulla', *Acta Class.* 4 (1961), 64-79), Herod (Jos. *BJ* 1. 656), Herod Agrippa (*Acts* 12.23: divine punishment again) and many others. The disease (phthiriasis) is not an imaginary one, but the more sensational obituaries of celebrated sufferers should be treated with extreme scepticism. See P. Fritsch, 'Phtheiriasis', *Der Hautarzt* 21 (1970), 127-30; T. Africa, 'Worms and the death of kings', *Class. Antiquity* 1 (1982), 1-17; A. Keaveney and J. A. Madden, 'Phthiriasis and its victims', *SO* 57 (1982), 87-99; J. M. Riddle, 'Gargilius Martialis as a medical writer', *JHistMed* 39 (1984), 408-29, at 416-21. Lists of victims should include Julian, the uncle of Julian the Apostate, who blasphemed against Christ and was immediately striken with worms in a highly embarrassing area (Sozomen 5.8).

[44] Various lengths of pregnancy, from six months to over ten, are mentioned by Hippocrates 7.440.4ff Littré, and Pliny *NH* 7.38-40. The five-year pregnancy of Kleo (*IG* iv 121.1, 4th century BC) is no doubt exceptional.

Finally, reference may be made to a remarkable case of an operation performed by a man upon himself. Hegesistratus, an Elean, was taken by the Spartans, bound, and condemned to death. In peril for his life, and to avoid torture, he took a knife and cut away the broad part of his foot[45] in order to free it from the iron shackle in which it was confined. He then excavated a hole through the wall of his prison, and eluding the sentinels, effected his escape, travelling by night and hiding by day. His captors later discovered that he had flown leaving half his foot on the floor of the chamber. After his escape he provided himself with a wooden foot — the earliest reference I know of to an artificial limb (9. 37).[46]

---

[45] 'Perhaps through the talocalcaneonavicular and calcaneocuboid articulations', Thomson, 22.

[46] The story of Pelops' ivory shoulder (Pind. *Ol.* 1.27 with schol.) perhaps implies knowledge of artificial limbs at an earlier date. See generally L. J. Bliquez, 'Classical Prosthetics', *Archaeology* 36. 5 (1983), 25-9, 54.